

CLAIMS

1. An electromechanical actuator for the regulation of the turbocharger of internal combustion engines, characterized by the combination of:
 - a) an electromechanical group comprising a solenoid (1) equipped with a sliding ferromagnetic nucleus (2) supplied with a rod (3) intended to interact with the pilot point (4) of the turbocharger (5) and furnished with a sensing system of the position occupied by the ferromagnetic nucleus (2) in the solenoid (1);
 - b) an electronic circuit which: - on the way in receives at least the signal from the engine's electronic control unit and the retroaction or feedback signal tied to the position of the ferromagnetic nucleus (2) in the solenoid (1); - on the way out it distributes the electric current connected to the entry signal and with which it feeds the solenoid (1) generating the magnetic field.
- 15 2. The actuator, as claimed in claim 1, characterized by a solenoid (1) with a coil made of conducting wire sheathed and/or treated with appropriate insulating material which makes it appropriate to be used even with high temperatures.
- 20 3. The actuator, as claimed in claim 1, characterized by a solenoid (1) combined with a ferromagnetic nucleus (2) with which the rod (3) is connected and through which the pilot point (4) is activated.
4. The actuator, as claimed in claim 1, characterized by a position sensor (7) through which the control of the position of the ferromagnetic nucleus (2) in the solenoid (1) is carried out.
- 25 5. The actuator, as claimed in claims 1 and 4, characterized by a position

sensor (7) made with a resistor (10), normally of the linear type.

6. The actuator, as claimed in claims 1 and 4, characterized by a position sensor (7) made with a capacitive group.

5 7. The actuator, as claimed in claims 1 and 4, characterized by a position sensor (7) made with a group that measures the inductance of solenoid (1) upon the variation of the position of the ferromagnetic nucleus (2).

8. The actuator, as claimed in claim 1, characterized by a rod (3) tied on one end to the ferromagnetic nucleus (2) and at the other end equipped with the means for its connection to the pilot point (4) of the turbocharger.

10 9. The actuator, as claimed in claims 1 and 8, characterized by a rod (3) combined with a spring (8) capable of pushing the ferromagnetic nucleus (2) to its resting position.

11. The actuator, as claimed in claim 1, characterized by an electronic circuit constituted by one control part (14) and by one power part (15), from which 1.5 the solenoid (1) is fed.

11. The actuator, as claimed in claim 1, characterized by an electronic circuit constituted by one part (14) with at least two entries, from which it receives in one, the signal from the engine's electronic control unit, of the ECU type or another equivalent one, in the other one, through the sensor (7), the 20 retroaction or feedback signal tied to the position of the ferromagnetic nucleus (2) in the solenoid (1).

12. The actuator, as claimed in claim 1, characterized by an electronic circuit comprising one part (14) from which the electric current sent to the solenoid (1) is issued and which is linked to the signals applied to its entry.

25 13. The actuator, as claimed in claim 1, characterized by an electronic circuit

comprising one part (14) constituted at least by a differential amplifier unit which receives on the way in, the signal from the engine's electronic control unit and the feedback signal coming from the sensor (7) and supplies a current with which the solenoid (1) is guided, through a power amplifier 5 part (15).

14. The actuator, as claimed in claim 1, characterized by an electromechanical group equipped with means for its anchoring on the turbocharger (5) or on the engine.
15. The actuator, as claimed in claims 1 and 14, characterized by flange type 10 means (11) for its anchoring on the turbocharger (5).